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STUDIES ON NORTH AMERICAN MORDELLIDAE, II[1]

(Coleoptera)

BY EUGENE RAY
Chicago, Illinois

The present paper is the second of a series dealing with North American members of the family. Six new species from Western North America are hereinafter described. Eleven others are included to expand recorded distributional records. Four of these are listed from the United States for the first time.

Material mentioned below is the result of a partial study of specimens from the collections of the Chicago Natural History Museum, Ohio State University, Cornell University, Oregon State Agricultural College, the Illinois State Natural History Survey, the University of Idaho, the University of Oklahoma, G. Stace Smith, Kenneth M. Fender, Melville H. Hatch, and R. R. Dreisbach. To all concerned indebtedness is acknowledged for the privilege of studying this material.

Mordella quadripunctata (Say)

Anaspis quadripunctata Say, 1824, Jour. Acad. N. S. Phila., 3:276.
Mordella quadripunctata LeConte, 1854, Proc. Acad. N. S. Phila., 7:220.

One specimen, Mesa, Colorado, June 20, 1925 (B. Patterson and J. H. Quinn).

Mordella fuscocinerea Fall

Mordella fuscocinerea Fall, 1907, Trans. Amer. Ent. Soc., 33:254.

Twenty-six specimens from the following Arizona localities: Hualpai Mts., July 4, 1937; Wickenburg, June 16, 1937, and July 17, 1940; Tucson, August 13, 1936; Prescott, June 20, 1937; and Congress Junction, June 4, 1937; also specimens from the Davis Mts., Texas, September 20, 1938, and Washington, Utah, June 27, 1937 (D. J. and J. N. Knull).

[1]Studies on North American Mordellidae, I. 1936, Can. Ent., 68:124-129, pl. 9.

Mordella pretiosa Champion

Mordella pretiosa Champion, 1891, Biol. Cent. Amer. Col. 4, 2:302.

One specimen, Brownsville, Texas, May 31, 1939 (D. J. and J. N. Knull). Hitherto known only from Cordoba, Ver., Mexico, the present rceord is therefore the first from America north of Mexico.

Mordella brevistylis Liljeblad

Mordella brevistylis Liljeblad, 1922, Can. Ent., 54:56.

Six specimens, one male and five females, Davis Mts., Texas, July 2, 1940 (D. J. and J. N. Knull). This species was originally described from New Mexico.

Glipodes sericans (Melsheimer)

Mordella sericans Melsheimer, 1846, Proc. Acad. N. S. Phila., 2:312.
Glipodes sericans LeConte, 1862, 1 c., 14:48.

One specimen, Arkadelphia, Arkansas, August 13 (D. J. and J. N. Knull).

Isotrilophus erraticus (Smith)

Mordellistena erratica Smith, 1882, Bull. Brk. Ent. Soc., 5:80.
Isotrilophus erratica Liljeblad, 1946, Mis. Publ. Mus. Zool., Univ. Mich., 62:18.

One specimen, Ouachita National Forest, Arkansas, July 3, 1935 (C. H. Seevers).

Mordellistena neocincta Ray, new species
(Figures 5, 10, 15)

Form moderately slender, sides subparallel. Derm black, head fuscocastaneous, with an indistinct dorsal cloud; legs castaneous, except femora, which are fuscocastaneous, maxillary palpi and antennae castaneous, the latter slightly darker at tip, a narrow line along apical margins of abdominal segments castaneous, and a pair of castaneous spots on each elytron, one subbasal and extending diagonally toward suture, the other a postmedian transverse band, expanding slightly basad, subsuturally, but not reaching suture. Surface densely covered with fine, recumbent, whitish pubescence, which, on lighter parts of derm assumes a yellowish tinge.

Head strongly convex, but little narrower than pronotum. Antennae short, .72 mm. long, reaching middle of lateral pronotal

margin; segments 1-2 large, the latter distinctly longer; 4 slightly longer and distinctly broader than 3; 5-10 each distinctly longer and much broader than 4; 11 one-third longer but narrower than 10, broadest medially, sides and angles rounded. Terminal segment of maxillary palpi enlarged, with form of a scalene triangle, apical side shortest, outer edge longest, all margins noticeably rounded.

Pronotum strongly rounded, distinctly broader than long (.83x .76 mm.), edges finely margined, apex, sides and basal angles rounded, the latter obtuse, base strongly arcuate, a slight concavity on either side of midbasal lobe, the latter moderately broad and long, rounded in front of scutellum. Scutellum large, broader than long, broadly subtriangular, sides and apex strongly rounded.

Elytra moderately elongate, two and three-fourths times as long as broad (1.92x.83 mm.), sides subparallel on basal two-thirds, thence curved to apex, apices individually rounded. Anterior and intermediate tarsi filiform, shorter than their tibiae, penultimate segment shortest. Posterior tibiae with a single, short ridge, equal in length to subapical ridge; basitarsi with two short ridges near tip; none on second segment. Anal style but twice length of apical ventral segment (.72x.38 mm.), moderately robust, with a premedian constriction, thence acuminate to apex, the latter pointed.

Length: to apices of elytra, 2.68 mm.; to tip of anal style, 3.4 mm.

Holotype. ♂, DAVIS MTS., TEXAS, August 22, 1936 (J. N. Knull); in the collection of Ohio State University.

Paratype. ♂, HUACHUCA MTS., ARIZONA, August 18, 1936 (J. N. Knull); in the collection of Eugene Ray.

This species is most closely allied to *bicinctella* LeConte[2] and may be separated by the longer antennae, which reach to middle of lateral pronotal margin, with segment four one-third longer and much broader than three, and five to ten subequal in length, the completely black pronotum, the difference in elytral markings—the basal band extending posteriorly toward suture, the shorter and broader anal style, the larger size and the additional ridge on the second segment of the posterior tarsi. The same characters will separate *neocincta* from *ozarkensis* Ray[3], to which species it is also allied.

MORDELLISTENA SPARSA CHAMPION

Mordellistena sparsa Champion, 1891, Biol. Centr. Amer. Col., 4, 2:335.

[2]Proc. Acad. N. S. Phila., 1862, 14:48.
[3]Can. Ent., 1936, 68:125.

Two specimens, Cayucos ?, California, July 4, 1931 (H. Dorn). This Mexican species is here recorded for the first time as occurring in the United States.

Mordellistena huachucaensis Ray, new species
(Figures 2, 16)

Form elongate, narrow, sides subparallel. Derm fuscobrunneous, head and pronotum somewhat lighter, apical margins of ventral abdominal segments distinctly flavous. Surface completely covered with fine, recumbent pubescence, golden everywhere, except on elytra, where there exists a mixture of golden and fuscobrunneous, the former much more prominent.

Head strongly convex, eyes distinctly emarginate on anterior margin. Antennae 1.32 mm. long, reaching metacoxae; segments 1-2 short, equal; 4 long, twice length of 3; 4-9 subequal; 10 one-third shorter than 9; 11 longer than 10 but shorter than 9, mesal margin and apex rounded. Terminal segment of maxillary palpi enlarged, form of an elongate scalene triangle, outer edge distinctly concave, other margins convex, angles rounded.

Pronotum convex, distinctly broader than long (1.17x1.02 mm.), outer edge completely margined, sides and apex rounded, base arcuate, midbasal lobe short, broad, truncate, subemarginate. Scutellum moderately large, triangular, broader than long, sides straight, apex a right angle.

Elytra more than two and one-half times as long as broad (3.02x1.17 mm.), sides distinctly curved, broadest at one-third from base, apices individually rounded. Basitarsi of anterior and intermediate legs as long as remaining segments together, penultimate segments short, slightly thickened, emarginate at apex. Posterior tibiae with two ridges, the anterior one extending obliquely completely across outer face; basitarsi with four oblique ridges, second segment with two. Anal style more than three times length of apical ventral segment (1.51x.45 mm.), slender, evenly attenuate to apex.

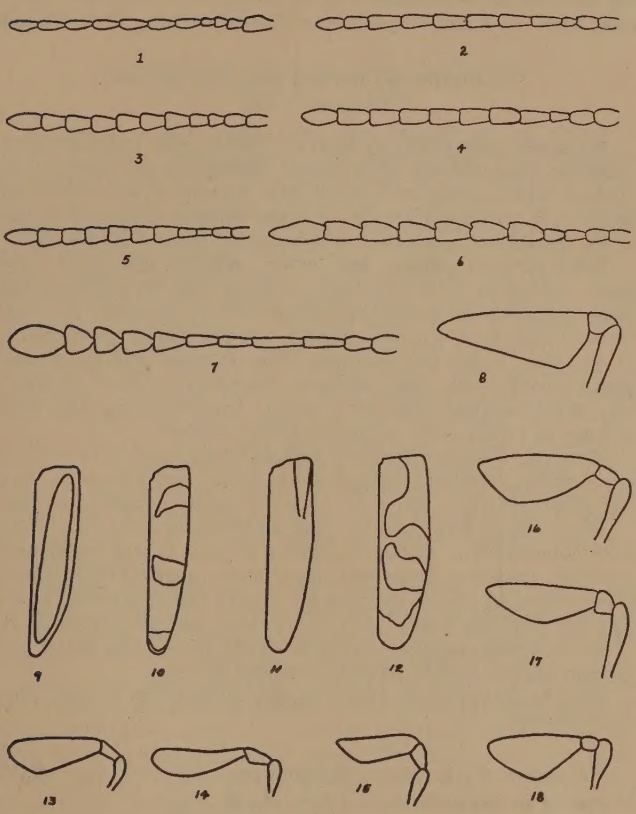
Length: to apices of elytra, 4.04 mm.; to tip of anal style, 5.55 mm.

Holotype. ♀, HUACHUCA MTS., ARIZONA, July 20, 1936 (J. N. Knull); in the collection of Ohio State University.

Paratype. ♀, type locality, June 9, 1935 (J. N. Knull); in the collection of Eugene Ray.

This species is most closely allied to *rufa* Liljeblad[4], but may be separated by the darker and different color, larger size, longer antennae, segment four of which is twice as long as three, the absence of sutural and marginal black lines on the elytra and

[4]Can. Ent., 1917, 49:11.



Explanation of Plate

1. Antennae of *Mordellistena diversa*. 2. Antenna of *M. huachucaensis*. 3. Antenna of *M. arcuata*. 4. Antenna of *M. humerosa*. 5. Antenna of *M. neocincta*. 6. Antenna of *M. terminata*. 7. Antenna of *Pentaria bicincta*. 8. Maxillary palpus of *P. bicincta*. 9. Elytron of *Mordellistena arcuata*. 10. Elytron of *M. neocincta*. 11. Elytron of *M. humerosa*. 12. Elytron of *Pentaria bicincta*. 13. Maxillary palpus of *Mordellistena humerosa*. 14. Maxillary palpus of *M. diversa*. 15. Maxillary palpus of *M. neocincta*. 16. Maxillary palpus of *M. huachucaensis*. 17. Maxillary palpus of *M. arcuata*. 18. Maxillary palpus of *M. terminata*.

the broader form. Comparison has been made with the type of *rufa*, based on a single specimen collected at Palos Park, Illinois.

Mordellistena diversa Ray, new species
(Figures 1, 14)

Elongate, subparallel; moderately robust; color rufocastaneous, vertex of head and disc of pronotum fuscocastaneous, appendages, apex of metasternum and apical half of ventral abdominal segments 2, 3 and 4, castaneous. Surface densely covered with fine, short, recumbent pubescence, densest along base of elytra.

Head strongly convex; eyes entire, covered with short, erect hairs. Antennae 2-2.2 mm. long, reaching base of abdomen; segments 3-4 equal in length, the former slightly broader; 5-10 each twice as long as 4 and considerably broader, widest postmedially; 11 distinctly longer and narrower than 10, mesal and apical margins rounded, outer edge straight. Terminal segment of maxillary palpi enlarged, form of a scalene triangle, more than twice as long as broad, sides straight, angles rounded.

Pronotum convex, distinctly broader than long (1.7-2x1.45-1.7 mm.), finely, completely margined, sides and angles rounded, basal lobe short, rounded. Scutellum large, triangular, rounded at apex.

Elytra more than twice as long as broad (4-4.5x1.7-1.9 mm.), sides subparallel to within one-fourth of apex, apices individually rounded. Posterior tibiae with three short ridges, basitarsi with three ridges (a fourth rudimentary one in one specimen), second segment with two ridges. Anal style short, less than twice length of apical ventral segment (1.3-1.45x.75-.85 mm.), sides gently constricted beyond middle, abruptly rounded at apex.

Length: to apices of elytra, 5.45-6.2 mm.; to tip of anal style, 6.75-7.65 mm.

Holotype. ♀, SEATTLE, WASHINGTON, July 3, 1941 (O. T. Grande); in the collection of Melville H. Hatch.

Paratypes. Four ♀♀; two, same data as holotype; one, WALDPORT, OREGON, July 1, 1934 (J. Schuh); one, McMINNVILLE, OREGON (K. M. Fender); in the collections of Melville H. Hatch, Oregon State Agricultural College, K. M. Fender and Eugene Ray.

This species is somewhat allied to *nunenmacheri* Liljeblad[5] and may be separated by the different color, broader pronotum, the absence of a v-shaped notch on basal margin of pronotum, the larger size and the shorter anal style. Distinct differences in color, size, the short anal style, and the peculiar antennae, will

[5]Can. Ent., 1918, 50:157.

separate *diversa* from other allied species, such as *unicolor* LeConte[6] and *sericans* Fall.[7]

Mordellistena humerosa Ray, new species
(Figures 4, 11, 13)

Moderately robust, subcuneate, sides strongly curved caudad to middle of elytra. Derm black, front, clypeus, labrum and anterior and intermediate legs castaneous, except tarsi, which are fuscocastaneous, basal segments of antennae fuscocastaneous. Surface densely covered with fine, recumbent pubescence, yellowish cinereous on head and pronotum, with golden pubescence at base of elytra, in the form of a wedge-shaped area extending from the humeri one-third length, not touching lateral margins and separated from suture by a distance more than half their breadth; golden along sides of metasternum and bases of abdominal segments.

Head strongly convex; eyes entire, densely covered with short, erect hairs. Antennae 1.05 mm. long, reaching to base of pronotum; segments 1-2 large, equal; 4 one-half longer than 3 and slightly broader; 5-10 each no longer than 4 and but slightly broader; 11 distinctly longer than 10, broadest at apical third, sides and apex rounded. Terminal segment of maxillary palpi enlarged, with the form of a fairly broad scalene triangle, apical edge shortest, but one-half length of lateral margin, sides and corners rounded.

Pronotum strongly convex, distinctly broader than long (1.09x .98 mm.), apical and lateral margins rounded, basal angles but slightly obtuse, mid-basal lobe broad and fairly long, but truncate at apex. Scutellum triangular, sides and apex rounded.

Elytra two and three-tenths times as long as broad (2.49x1.09 mm.), sides subparallel to middle, thence strongly curved to apex, apices individually rounded. Anterior and intermediate tarsi filiform, equal in length to their tibiae. Posterior tibiae with three oblique, parallel ridges extending across less than half outer face, second ridge somewhat longer than other two; basitarsi with four short, oblique ridges, second segment with two. Anal style short, robust, slightly more than one-half longer than apical ventral segment (.98x.6 mm.), acuminate to apex, the latter blunt, but not truncate.

Length: to apices of elytra, 3.47 mm.; to tip of anal style, 4.45 mm.

Holotype. Sex undetermined, CHIRICAHUA MTS., ARIZONA, June 15, 1939 (D. J. and J. N. Knull); in the collection of Ohio State University.

This species is most closely allied to *schauppi* Smith[8] and

[6]Proc. Acad. N. S. Phila., 1862, 14:50.
[7]Trans. Amer. Ent. Soc., 1907, 33:256.
[8]Trans. Amer. Ent. Soc., 1882, 10:96.

may be distinguished by the darker, unicolored derm of body, with the exception of the head, the bicolored appendages, the presence of a basal, pubescent elytral spot, the much shorter anal style, the much broader, shorter form, and the truncate basal lobe of the pronotum.

MORDELLISTENA SERICANS FALL

Mordellistena sericans Fall, 1907, Trans. Amer. Ent. Soc., 33:256.

One specimen, Pasadena, California (H. Dorn).

MORDELLISTENA INCOMMUNIS LILJEBLAD

Mordellistena incommunis Liljeblad, 1921, Can. Ent., 51:185.

One specimen, Laramie, Wyoming, July 5, 1938 (D. J. and J. N. Knull).

Mordellistena terminata Ray, new species
(Figures 6, 18)

Form moderately slender, sides subcuneate. Derm fuscopiceous, antennae, maxillary palpi and anterior and intermediate legs castanous, posterior tibiae and tarsi fuscocastaneous, caudal margins of metasternum and abdominal segments narrowly fuscocastaneous. Surface densely covered with fine, recumbent, yellowish-cinereous pubescence.

Head strongly convex, distinctly narrower than pronotum; eyes entire, densely covered with fine, short, erect hairs. Antennae 1.43 mm. long, the three terminal segments extending beyond base of pronotum; segments 1-2 short, equal; 3-4 equal, each as long as 2; 5 almost twice as long as 4 and broadening until at apex it is one-half broader than 4; 6-10 each as long and broad as 5; 11 one-half longer than 10, subquadrate, sides but gently curved, broadest premedially, apex rounded. Terminal segment of maxillary palpi enlarged, moderately robust, with the form of an isosceles triangle, lateral margin longer than the other two sides, angles rounded.

Pronotum strongly rounded, distinctly broader than long (1.32x 1.21 mm.), completely and finely margined, apex, sides and basal angles broadly rounded, the latter obtuse, base arcuate, midbasal lobe broad, short, rounded. Scutellum small, broadly triangular, sides and apex rounded.

Elytra narrow, elongate, more than twice as long as broad (2.83x1.32 mm.), broadest at base, sides subcuneate from base to apex, strongly rounded on apical half, apices individually rounded. Anterior and intermediate tarsi as long as their tibiae, segments filiform, penultimate segment the shortest. Posterior tibiae with four oblique, parallel ridges (excluding subapical one), each ex-

tending one-third distance across outer face, basitarsi with four oblique ridges, second segment with two. Anal style three times as long as apical ventral segment (1.51x.49 mm.), moderately robust, acuminate to apex, the latter blunt.

Length: to apices of elytra, 4.04 mm.; to tip of anal style, 5.55 mm.

Holotype. ♀, BROKEN BOW, OKLAHOMA, June 13, 1939 (Kaiser-Nailon); in the collection of the University of Oklahoma.

This species is somewhat allied to *aethiops* Smith[9], but may easily be separated by the much longer antennae, the three terminal segments of which extend beyond the base of the pronotum, the longer, narrower terminal segment of the maxillary palpi, the rounded basal lobe of the pronotum, the elytra, which are as broad as the pronotum, the castaneous anterior and middle legs, the yellowish-cinereous pubescence and the larger size.

Mordellistena arcuata Ray, new species
(Figures 3, 9, 17)

Moderately elongate, sides subcuneate. Derm black, elytra with base broadly black, suture more narrowly black to apex, the latter and side margins black, the disc fuscocastaneous, giving the appearance of a broad, subbasal, discal vitta extending almost to apex, legs and antennae varying from fuscocastaneous to completely black, anterior legs the lightest, abdominal segments with a narrow fuscocastaneous line at apex. Surface completely covered with fine, recumbent pubescence, silvery on the ventral surface, tinged with yellow on the head, yellowish on the pronotum but most dense broadly along margins, golden on fuscocastaneous parts of elytra and partaking of ground color along suture, side margins and apex.

Head strongly convex; eyes entire, densely covered with short, erect hairs. Antennae 1.13 mm (♂) and 1.43 mm. (♀) long, reaching one-third from base of pronotum; segments 1-2 large, equal; 3-5 successively longer, 5 one-half longer than 3; 4 broader than 3, but not as broad as 5; 5-10 equal in both length and breadth, each broadest at apex and subserrate; 11 distinctly longer than 10, broadest one-third from apex, sides rounded. Terminal segment of maxillary palpi enlarged, form of an elongate scalene triangle, apical margin one-third length of lateral edge.

Pronotum convex, broader than long (1.02x.94 mm. in ♂, 1.4x 1.25 mm. in ♀), apex and sides rounded, basal angles obtuse, basal margin arcuate, midbasal lobe large, broad, subtruncate at middle. Scutellum small, rounded-triangular.

Elytra distinctly more than twice as long as broad (2.26x1.02

[9]Trans. Amer. Ent. Soc., 1882, 10:98.

mm. in ♂, 2.9x1.4 mm. in ♀), sides rounded from base to apex, broadest one-fourth from base, apices individually rounded. Anterior and intermediate tarsi filiform, shorter than their tibiae. Posterior tibiae with four or five subequal, oblique ridges extending less than half width of outer face; basitarsi with four ridges, second segment with two. Anal style twice length of apical ventral segment .98x.49 mm. in ♂, 1.2x.6 mm. in ♀, broad, abruptly constricted at middle, apex truncate.

Length: to apices of elytra, (♂) 3.2 mm. and (♀) 4.15 mm.; to tip of anal style, (♂) 4.18 mm. and (♀) 5.35 mm.

Holotype. ♂, Davis Mts., Texas, June 8, 1939 (D. J. and J. N. Knull); in the collection of Ohio State University.

Paratypes. Two ♀♀, same data as holotype; one ♀, type locality, July 6, 1939 (J. N. Knull); in the collections of Ohio State University and Eugene Ray.

This species is most closely allied to *attenuata* (Say)[10] and may be separated by the peculiar antennae, in which segments three to five are successively longer, with the latter one-half longer than three, by the longer and narrower maxillary palpi, by the entire elytral vitta and by the bicolored condition of the latter, with its suture, base and margins black and the rest fusco-ferruginous.

Pentaria bicincta Champion
(Figures 7, 8, 12)

Pentaria bicincta Champion, 1891, Biol. Centr. Amer. Col., 4, 2:254.

Thirty-three specimens, Brownsville, Gillespie County, Uvalde and Davis Mts., Texas, and Chiricahua Mts., Arizona, May 2 to July 6 (D. J. and J. N. Knull). This species, hitherto recorded only from Chihuahua, Mexico, is a new record for the United States. It exhibits considerable variation in size and in the distinctiveness of the markings on the pronotum and elytra.

Pentaria brunneipennis Champion

Pentaria brunneipennis Champion, 1891, Biol. Centr. Amer. Col., 4, 2:253.

One specimen, Davis Mts., Texas, July 11 (H. A. Wenzel). Known hitherto only from Chilpancingo, Mexico, this specimen is the first to be recorded from the United States.

[10]Journ Acad. N. S. Phila., 1826, 5:243.

NOTES ON THE TANYDERIDAE OF THE AUSTRALASIAN REGION.
(Diptera)

PART I

BY CHARLES P. ALEXANDER
Massachusetts State College, Amherst

The uncommon and primitive flies that constitute the family Tanyderidae are better represented in the Australasian region than elsewhere. By far the largest generic group within the family is *Radinoderus* Handlirsch, including about ten species in the Australian and Papuan subregions. In large collections of Tipulidae received from various friends and correspondents a few scattered specimens of these flies were included, representing various species that are discussed in this report. Where not specified to the contrary the types of the new species are preserved in my collection of Tipulidae and allied families. For a consideration of the characters and scope of the Tanyderidae, the latest comprehensive papers may be consulted.[1]

Radinoderus solomonis (Alexander)

1924. *Tanyderus* (*Radinoderus*) *solomonis* Alexander, Insec. Inscit. Menst., 12:143.

The type, a female, was from Guadalcanal (Guadalcanar), collected in January, 1921, by J. A. Kusche; preserved in the Bishop Museum, Honolulu. One further female, Solomon Islands (exact island unspecified), November, 1944 (Jean Laffoon).

Radinoderus holwayi Alexander, new species

Size large (wing, female, over 18 mm.); thoracic dorsum chiefly dark brown, the posterior sclerites of the notum and the pleura variegated by gray; antennae, including the flagellum, brownish black; legs yellow, the femoral tips and tibial bases broadly brownish black; wings subfalcate, whitish subhyaline, handsomely patterned with brown, the dark areas in the basal third and along the costal border with pale centers and narrow

[1]Alexander, C. P.
1927. Tanyderidae, Genera Insectorum, Fasc. 189:1-13, pl.
1928. The Tanyderidae of Australia (Diptera). Proc. Linn. Soc. New South Wales, 53:367-374, 4 figs.
1932. The Dipterous family Tanyderidae in Japan (Insecta). Annot. Zool. Japonenses, 13:273-281, 2 figs. (detailed bibliography).

dark borders; oval area in outer end of cell *R* unusually well-marked and delimited by curvature of the enclosing veins; vein R_1 angulated and spurred at outer end; cell M_4 strongly widened outwardly, at margin a little less than three times as wide as cell M_3; abdomen dark brown, the more proximal tergites and sternites variegated by grayish or yellowish spots.

Female. Length about 29 mm.; wing 18.2 mm.

Frontal prolongation of head brownish black, the surface sparsely pruinose, the dorsal surface protuberant; mouthparts black; palpi brownish black, the intermediate segments a trifle paler. Antennae brownish black; flagellum broken at the sixth segment; segments cylindrical, with a dense erect pubescence and sparse elongate unilaterally distributed verticils. Head above on front, anterior vertex, cephalic portion of posterior vertex and the orbits gray, the restricted posterior vertex and occiput dark brown; anterior vertex on its cephalic half very narrow, not much wider than a single row of ommatidia, on the posterior portion becoming about four times as wide.

Cervical sclerites very elongate, dark brown above, somewhat paler on sides. Pronotum dark brown above, paler and more pruinose on sides. Mesonotal præscutum and scutum with the disk occupied by three confluent brown stripes, the humeral and lateral borders yellowish gray; scutellum grayish pruinose, with a central brown line; mediotergite brown on central portion, broadly gray pruinose on the cephalic lateral angles. Pleura and pleurotergite dark brown varigated with light gray, including a major area on posterior sternopleurite and cephalic and dorsal pteropleurite. Halteres with stem light yellow, knob brownish black. Legs with the coxae and trochanters dark brown, sparsely pruinose; femora light yellow, the tips rather narrowly brownish black; remainder of legs light yellow, the tibial bases brownish black, the amount a little greater than the femoral tips. Wings whitish subhyaline, handsomely patterned with brown, the markings arranged about as in *terrae-reginae* yet with all details distinct; dark areas of basal third of wing and along the costal border much paler on their central portions, narrowly bordered by dark brown, the paler centers more or less freckled with pale yellow spots; the subbasal clear band in *terrae-reginae* is here virtually eliminated in the radical and medial fields; ground costal interspace opposite the cord very extensive, wider than either subtending dark area; veins yellow in the ground fields, chiefly darkened in the patterned areas, this including *C*, *Sc* and outer radial veins. Wing outline strongly subfalcate, the margin being strongly emarginate opposite the termination of veins R_5 to M_{1+2}, inclusive. Venation: Outer two-fifths of *Rs* and the corresponding portion of vein *M* behind it strongly convex to delimit an unusually distinct oval area in the outer fourth of cell *R*; *Sc* long, Sc_2 terminating nearly opposite the fork of R_{2+3}; distal section of vein R_1 moderately sinuous, angulated and spurred at outer end; cell *1st* M_2 a

little shorter than in *terrae-reginae*, the distal section of vein M_3 more than one-half the length of the basal section; *m* angulated at near midlength; cell M_4 strongly widened outwardly as in *terrae-reginae*, at margin a little less than three times that of cell M_3.

Abdomen elongate; basal tergite dark brown, with a major gray area at the cephalic portion and another less evident one near the posterior border; succeeding tergites dark brown, with a large silvery gray area on the side beyond midlength, this smaller on the outer segments, becoming obsolete at near the sixth tergite; second to fourth tergites, inclusive, with a more yellowish median brightening just before the posterior border; proximal sternites dark brown, the lateral margins patterned with vague, more yellowed areas; outer segments uniformly dark brown.

Habitat. SOLOMON ISLANDS.

Holotype, ♀, GUADALCANAL, May 6, 1943 (R. T. Holway).

Named for the collector, Dr. Richard T. Holway, who served as ensign and naval malariologist in the Pacific area. By my key to the species of *Radinoderus* (Insec. Inscit. Menst., 12:141; 1924), this fly runs to *terrae-reginae* (Alexander), of southern Queensland, with which species it has been compared throughout the above description. The most conspicuous characters of this species include the darkened antennal flagellum and the wing shape, pattern and venation. The oval area set off in cell *R* is more distinct here than in other species known to me.

Radinoderus pictipes Alexander, new species

Legs variegated with brown and yellow, the tibiae medium brown at either end, enclosing a broad yellow band; antennae 23-segmented, flagellum yellow, the incisures a little more darkened; wings relatively broad, whitish subhyaline, conspicuously banded with brown, the areas only inconspicuously margined with still darker brown; outer dark band sending a long arm to the wing-tip in the outer radial cells; major pale areas in outer radial field and beyond cord with smooth margins, the latter marking lying almost transversely to the wing; veins enclosing outer end of cell *R* arcuated to delimit an oval area near the outer end of cell *R*; vein R_1 beyond Sc_2 unusually sinuous, curved at tip; cell *1st* M_2 long, approximately twice vein M_1 beyond it; cell M_4 widened outwardly, at margin fully four times *m-cu*.

Female. Length about 15 mm.; wing 15 mm.

Frontal prolongation of head brown, very sparsely pruinose; mouthparts darker brown, the first segment of palpus paler. Antennae with scape brown, pedicel more yellowed, flagellar segments a trifle darker at the incisures; 23-segmented, including the reduced terminal unit; flagellar segments subcylindrical, with long

outspreading yellow setae that much exceed the diameter of the segment opposite their point of insertion. Head light gray; anterior vertex reduced to a capillary strip that is only about as wide as a single row of ommatidia; eyes relatively large, ommatidia very fine.

Cervical region dark brown; pronotum somewhat paler brown. Mesonotal praescutum and scutum with the restricted ground color light gray, most evident as lateral borders just behind the pseudosutural fovea; posterior interspaces a little paler than three darker brown stripes, the center of the median stripe more brownish gray; interspaces with conspicuous erect setae; scutellum light yellow, gray pruinose, the apex with long yellow setae; mediotergite light brown, paler on sides and on caudal half of pleurotergite. Pleura conspicuously variegated pale yellow and dark brown, the latter including a conspicuous area on sternopleurite, anepisternum and again on meron, leaving an extensive pale mark on the pteropleurite and posterior border of sternopleurite; dorsopleural membrane surrounding the spiracle yellow, darker behind. Halteres with stem pale yellow, knob dark brown. Legs with the fore coxae and trochanters light yellow; middle and hind coxae infuscated; trochanters obscure yellow; femora yellow, with a nearly terminal brown ring that occupies about the outer sixth to eighth of segment; tibiae brown at both ends, enclosing a broad yellow ring, this narrower than the darkened outer portion, provided with pale setae; extreme tip of tibia paling to yellow; tarsi yellow. Wings relatively broad, whitish subhyaline, conspicuously banded with brown, the latter appearing as two broad crossbands, with additional darkenings at base and again at apex; a very small ocelliform mark at origin of *Rs*; the two major crossbands interconnected in cells *C* and *Sc* only; outer band sending an arm obliquely outward to the wing tip, crossing the distal ends of the outer radial cells, extending from vein R_1 to R_4, with pale marginal droplets in ends of all cells; in outer radial field an unusually conspicuous oval pale area extending from costa to vein R_1, pale band beyond cord almost transverse to the wing, both pale areas with almost smooth margins; dark areas very weakly bordered by brown, more conspicuously so in the vicinity of the cord; veins brown, yellow in the patterned areas excepting *C*, *Sc* and *R*, origin of R_2, and most of the elements comprising the cord. Venation: Outer two-fifths of *Rs* strongly arcuate, the corresponding portion of *M* slightly bent, the two enclosing a conspicuous suboval outline at the distal fourth of cell *R*; vein R_1 beyond Sc_2 unusually sinuous, at tip curved strongly cephalad, vein R_2 similarly upcurved; *m-cu* just before midlength of the nearly square M_{3+4}; cell *1st* M_2 very long, approximately twice vein M_1 beyond it; cell M_1 widened outwardly, at margin fully four times *m-cu*.

Abdominal tergites dark brown, segments two to six each with a conspicuous silvery white sublateral spot near base, this smallest on the sixth segment; sternites silvery white on basal lateral por-

tions, the remainder pale brown; outer abdominal segments, including ovipositor, dark brown.

Habitat. NETHERLANDS NEW GUINEA.

Holotype, ♀, HOLLANDIA, May, 1934 (W. Stüber); to be returned to the Zoological Museum, Buitenzorg, Java.

By my key to the species of *Radinoderus* (Insec. Inscit. Menst., 12:141; 1924), the present fly runs to couplet 3, including *ornatissimus* (Doleschal) and *terrae-reginae* Alexander, differing from both, and from the species subsequently described, by the pattern of the legs and wings, and in the venational details, as described. The oval area at the outer end of cell *R* is unusually conspicuous as compared with the related species, with the exception of *holwayi* new species.

A NEW RECORD FOR AULICUS TERRESTRIS LINSLEY

While collecting on the floor of San Joaquin Valley about ten miles north of McKittrick, California, two specimens of *Aulicus terrestris* Linsley were taken on the flowers of a *Phacelia* sp. The *Phacelia* were growing in a damp wash some eight feet below the general surface of the valley floor. The specimens were taken at 4:45 P.M., while overcast and cool. The fact that the adults were feeding upon flowers is interesting, as Linsley[1] has recorded the adults as predaceous upon the larvae of certain moths.

As is pointed out by Linsley[1], *Aulicus terrestris* is found in association with the lubber grasshopper, *Esselenia vanduzeei* Hebard. This grasshopper has been found in Monterey County, on Mount Hamilton, on Mount Diablo, in the Livermore Valley, and in the foothills of Kern County. *Aulicus terrestris* Linsley has been recorded from all the above areas but one, that of Kern County. The new record completes the locality relationship. Although *Esselenia vanduzeei* Hebard was not taken in the same spot with the clerids, the species was found in abundance a few miles to the south.—K. E. FRICK.

[1] Linsley, E. G., 1936. Studies in the Genus *Aulicus* Spinola. Univ. Calif. Publ., 6 (9) :249-162.

NEW SPECIES OF THRIPS FROM HAITI AND TURKESTAN

BY DUDLEY MOULTON
Redwood City, California

Chirothrips spinosus Moulton, new species

Holotype female. Head and antennal segments four to eight brown, thorax, legs, abdomen and antennal segments one and two orange yellow with first antennal segments and outer surfaces of middle and hind legs slightly darkened; wings clear, veins of fore wings slightly shaded.

Total body length 1.45 mm.; head length 0.126 mm., width 0.126 mm.; prothorax length 0.23 mm., width in front 0.13 mm., behind 0.28 mm.; pterothorax width 0.35 mm.; antennal segments: length (width) I, 26 (56); II, 33 to base of third segment 43 to tip of process (40 to edge of process); III, 40 (26); IV, 30 (26); V, 26 (23); VI, 36 (20); VII, 16; VIII, 10; total 216 microns. Setae on posterior angles of prothorax, outer 43 microns, inner 26 microns; at tip of abdomen 133 microns.

Front of head distinctly produced, forehead between bases of antennae and ocelli with about thirty-five setae on either side, the posterior ones occupying the area on either side of anterior ocellus; first antennal segment greatly enlarged and about twice as wide as long, segment two inverted shoe-shaped; pronotum, mesanotum almost uniformly covered with numerous short, stout setae, likewise metanotum in the middle, first tergite almost completely, second, third and fourth tergites in their distal halves and with these setae becoming more scattered on the following tergites. Fore vein of fore wing with six basal and two distal setae, hind vein with three setae.

Type material: *holtoype* female and one *paratype* female taken on heads of grass, *Holcus halipensis*, December 16, 1929, by H. L. Dozier. (No. 4463.) Types in author's collection.

Type locality: DAMIEN, HAITI.

This species may be compared with *vestis* Hood but is readily separated by the more numerous setae on forehead, thorax and abdomen and the clear white colored wings.

Liothrips jazykovi Moulton, new species

Holotype female. Color blackish brown including legs; antennal segments one and six to eight blackish brown, two likewise but shading to brown in outer distal half, three yellow but somewhat clouded near the tip, four yellowish in basal half shading to dark

brown in distal half, five yellowish in basal third blackish brown in distal half, seven lightened only at extreme base; wings clear, lightly shaded at base; prominent setae dark brown.

Measurements: total body length 2.76 mm.; head length 0.323 mm., width 0.205 mm.; prothorax length 0.176 mm., width 0.323 mm.; pterothorax width 0.455 mm.; tube length 0.205 mm., width at base 0.073 mm. Length of setae: postoculars not visible, on anterior notal angles 46, midlaterals 63, on posterior angles 100, on ninth abdominal segment 166, at tip of tube 133 microns. Antennal segments length (width): I, 40 (40); II, 60 (36); III, 100 (33); IV, 86 (36); V, 76 (33); VI, 66 (31); VII, 63 (26); VIII, 43; total 529 microns.

Head 1.5 longer than wide, vertex not produced, cheeks straight, almost parallel, eyes normal; mouth cone short, reaching two-thrds across prosternum, pointed; prothorax with all normal setae developed; legs slender, fore tarsi unarmed; wings with parallel sides, fore pair with two double fringe hairs in holotype but paratypes with six and ten; tube 0.6 as long as head.

Male allotype. Colored as in female and only slightly smaller; angular setae on ninth abdominal segment short and stout; fore wings with six double fringe hairs.

Type material: *holotype* female, *allotype* male, one female and one male *paratype*, taken on *Tamarix* sp. July 15, 1928, by A. Jazykov after whom the species is named. (No. 3302.)

Type locality: TASHKENT, TURKESTAN, ASIA.

This species belongs among the long-headed *Liothrips* with head 1.5 longer than wide and approaches *reuteri* Bagnall, but this latter species has a protruding vertex and a lighter colored antenna. It also resembles *terminaliae* Moulton found in Japan but here the postocular setae are well developed and the sixth antennal segment is yellowish in basal third.

Neoheegeria nevskvi Moulton, new species

Holotype female. Color blackish brown including legs except fore tarsi and outer halves of fore tibiae which are grayish brown, and antennae except segment three which is grayish brown but yellowish at base, sides and tip and segment four which is yellowish only at extreme base; wings clear except for a small brownish area at base; all prominent setae clear.

Measurements: Total length with abdomen somewhat distended 2.69 mm.; head length 0.278 mm., width 0.24 mm.; prothorax length 0.176 mm., width including coxae 0.36 mm.; pterothorax width 0.47 mm.; tube length 0.19 mm., width at base 0.065 mm.; length of setae: postoculars 100, on anterior angles of prothorax 60, posterior angles 110, on ninth abdominal segment 190, at tip of tube 183 microns. Antennal segments length, (width), I, 40

(36); II, 60 (33); III, 76 (36); IV, 80 (36); V, 70 (28); VI, 66 (23); VII, 56 (20); VIII, 43; total 485 microns.

Head approximately 1.1 longer than wide, cheeks nearly parallel but slightly wider posteriorly; postocular setae long, pointed. Antenna 1.7 longer than head, segment four longest, segments five to eight noticeably slender; segment three with three and four with four sense cones. Eyes large, posterior ocelli placed approximate to inner angles of eyes; mouthcone broad at base extending to near posterior margin of prosternum, pointed at tip.

Prothorax with long, pointed setae on anterior margin and anterior and posterior angles; legs slender, fore pair slightly stronger, fore tarsi unarmed. Wings broadly sole-shaped, fore pair with sixteen double fringe hairs. Abdomen normal, tube .7 as long as head, with nearly parallel sides, being almost as wide at tip as at base; setae on ninth segment about as long as tube, terminal setae somewhat shorter.

Allotype male colored as in female; head length 0.28 mm., width 0.205 mm., being approximately 1.36 longer than wide; fore femora greatly enlarged, fore tarsus armed with a stout tooth; angular setae on ninth abdominal segment reduced to spurs.

Type material: *holotype* female, *allotype* male, *paratypes*, 12 females and 2 males, taken in flowers of *Phlomis vegel* and from another unnamed host plant, May 15 and 29, 1928, by Mr. V. Nevsky. (Nos. 3288, 3301.) Types in author's collection.

Type locality: TASHKENT, TURKESTAN, ASIA.

This species is most closely related to *Neoheegeria dalmatica* Schmutz with almost the same color, three sense cones on the third antennal segment and approximately the same number of double fringe hairs on fore wings. It differs in having clear collored setae, those on posterior angles of prothorax are not noticeably bent and are shorter than in *dalmatica*. The species is named after the collector, Mr. Nevsky.

TWO NEW SPECIES OF THRIPS FROM NORTH AMERICA

BY DUDLEY MOULTON
Redwood City, California

The new species of thrips described here have been in the author's collection for many years and only recently has it been possible to review and classify them. The author wishes to express his appreciation to the individuals who collected and forwarded the specimens for identification.

Aeolothrips nitidus Moulton, new species

Holotype female. Color dark brown, thorax and abdomen with much red pigment. Antennal segments 1 and 2 concolorous with head, 3-9 grayish white with segment 6 shaded a little darker at middle; legs dark brown except fore tarsi and tips of fore tibiae which are yellowish white; each fore wing with a dark brown longitudinal band along posterior margin which is widest at middle of wing and becomes narrower toward each end, the band begins in outer third of scale and terminates before tip of wing.

Total body length 1.7 mm.; head length 0.16 mm., width 0.16 mm.; prothorax length 0.13 mm., width 0.18 mm.; antennal segments length, (width): I, 30 (30); II, 46 (26); III, 80 (23); IV, 70 (20); V, 46 (20); VI-IX, 53; total 330 microns; fore wing length 0.735 mm., width at middle 0.10 mm.

Type material: *Holotype* female and four *paratype* females, taken May 16, 1929, by Mr. H. Lanchester.

Type locality: Moscow, Idaho.

Host: *Saracobatus vermiculatus.*

This species belongs in the *kuwani* group, with a long brown band along posterior margin of fore wing, and is most closely related to *yosemitei* Moulton. It is immediately separated from this latter species by the color of its antennae, with segments three to nine almost uniformly grayish white; in *yosemitei* the apical third of segment four, three-fifths of five and segments six to nine are grayish brown, also the wing bands extend to extreme base of wing and include the scale.

Taeniothrips aureus Moulton, new species

Holotype female. Color light yellow, including legs; head and thorax orange yellow; antennae mostly brown, segment one whit-

ish yellow and three somewhat lighter than segments two or four; wings light brownish yellow; setae brown; ocellar pigment orange.

Total body length 1.3 mm.; head length .126 mm., width .176 mm.; antennal segments length, (width): II, 43 (26); III, 53 (20); IV, 50 (20); V, 36; VI, 46; VII, 10; VIII, 13 microns. Length of setae: interocellars 66, on posterior angles of prothorax, inner 66, outer 60, on ninth abdominal segment, median 100, mid-lateral 126, on tenth segment 110 microns.

Interocellar setae placed immediately between posterior ocelli; third antennal segment 2.5 times longer than wide, broadly constricted apically; posterior margin of prothorax with four setae, two on either side; median setae on metanotal plate placed near anterior margin; comb on eighth abdominal segment complete; sterna without accessory setae; fore vein of fore wing with 3-3 basal and 2 distal setae, lower vein with 11-12 setae.

Type material: *holotype* female, one *paratype* female, two larvae; types in author's collection.

Type locality: ECHO LAKE, CALIFORNIA.

Host: grass.

This species is separated from *salicis* Reuter by its lighter color, longer third antennal segment and longer setae on head and body.

NOTE: Correction of name Thrips salvus Moulton, new name for *Thrips fuscus* Moulton, Pan-Pac. Ent., XII, p. 108, 1936.

AN OCCURRENCE OF *SCHIZOPUS* IN MONTEREY COUNTY, CALIFORNIA

Since the genus *Schizopus* is of interest both on account of its peculiar structure and its rather limited distribution and occurrence, I was pleased to be allowed to examine a specimen of this genus, collected by Alan Forbes at Jolon, Monterey County, California. The date of capture was May 9, 1940.

By Cazier's key, the specimen is readily referable to *sallei* Horn, but careful comparison with a topotypical specimen shows that the insect from Jolon is slightly smaller (12 mm. rather than 13 mm.) and is slightly darker, with an incomplete elytral vitta, which attains neither the humeral angle nor the apex of the elytra.

This seems to be the first mention of this species from the central coastal region.—J. W. TILDEN.

A PRELIMINARY KEY TO THE SPECIES OF PLEOCOMA
(Coleoptera, Scarabaeidae)

BY E. GORTON LINSLEY
University of California, Berkeley

There is little doubt that the various forms of *Pleocoma* to which names have thus far been applied represent distinct populations, but the exact taxonomic status of the more closely related of these must await future interpretation on the basis of longer series of both sexes from many more geographical areas than are now represented in collections. In the preparation of the following key it has not been possible to examine the various named forms in any one place or at any one time. This fact, coupled with the inadequate material available of one or both sexes of many of the species, requires that the key be regarded as wholly tentative. With this reservation, it may be used, with the original descriptions, to assist in the separation of the described species and subspecies as they are now understood.

KEY TO THE SPECIES OF PLEOCOMA

Males

1. Antennal club composed of four or five long lamellae; third antennal segment at most three-fourths as long as scape (except *remota*) 2
– Antennal club composed of six or seven long lamellae; third antennal segment nearly as long as scape 14
2. Scutellum coarsely, closely punctate, densely clothed with long coarse hairs 3
– Scutellum sparsely punctate, not or sparsely hairy 7
3. Elytra reddish- or chestnut-brown 4
– Elytra black 6
4. Pronotum narrowly and deeply, or broadly and shallowly, impressed in front; antennae with third segment less than three-fourths as long as scape. Oregon 5
– Pronotum broadly and deeply impressed in front; antennae with third segment more than three-fourths as long as scape; pubescence yellow. 22.5 mm. Utah ..... *remota* Davis
5. Pronotum dark brown, elytra light reddish-brown; pronotum with anterior impression very broad, involving half the width of pronotum. 23 mm. Northern Oregon: Sherman County ..... *oregonensis* Leach

– Pronotum and elytra concolorous; pronotum with anterior impression narrow, deep, coarsely and closely punctate, hairy. 24 mm. Southern Oregon: Douglas County.....*simi* Davis

6. Pubescence golden; anterior pronotal impression distinct. 22 mm. Southern Oregon: Jackson County.....*carinata* Linsley

– Pubescence dark brown or black; anterior pronotal impression indistinct. 25 mm. Northern California: Siskiyou County.....*shastensis* Van Dyke

7. Pubescence golden or reddish.....8

– Pubescence dark brown or black.....13

8. Lamella of eleventh segment with apex falling distinctly short of that of tenth segment. Northern California.....9

– Lamella of eleventh segment with apex about even with that of tenth segment. Southern California.....12

9. Pronotum coarsely punctate. Coast Range Mts.....10

– Pronotum finely, sparsely punctate. Sierra Nevada Mts.....11

10. Antennal club composed of four long lamellae, seventh segment transverse, subangulate but not lamellate, sixth segment cylindrical. Napa and Sonoma Counties....*sonomae* Linsley

— Antennal club composed of five long lamellae, seventh segment with a lamella one-half to two-thirds as long as that of eighth, sixth segment transverse, angulate. San Francisco Bay Area.....*behrensii* LeConte

11. Pronotum broadly rounded behind; antennal club shorter, barely long enough to surpass base of funicle. Central Sierra Nevada Mountains: foothills of Nevada, Placer and El Dorado Counties.....*fimbriata* LeConte

— Pronotum subangulate behind; antennal club long enough to reach nearly to base of scape. Southern Nevada Mts.: foothills of Madera, Fresno and Tulare Counties.....*tularensis* Leach

12. Pronotum piceous, elytra reddish-brown; pronotum shallowly, irregularly punctured. San Bernardino Mts.....*bicolor* Linsley

— Pronotum and elytra concolorous, black; pronotum deeply, coarsely, more regularly punctured. San Gabriel, San Jacinto and San Ysidro Mountains.....*australis* Fall

13. Pronotum, along mid-line, about two-thirds as long as greatest width, posterior angles rounded; elytral intervals rugose. 20-23 mm. Sonoma County.....*rickseckeri* Horn

— Pronotum, along mid-line, less than one-half as long as greatest width, posterior angles distinct; elytral intervals finely, sparsely punctate. 26-32 mm. Coastal southern California from Santa Monica to northern Lower California.....*puncticollis* Rivers

14. Pronotum with a distinct transverse elevation, suddenly declivous in front, broadly impressed behind, or the elytra with elevated costae, or both.....15

— Pronotum evenly convex or with a slight depression in front; elytra smooth or striato-punctate.....19

15. Pronotum with posterior angles broadly rounded, greatest width usually behind the middle. Pacific Coast....16
— Pronotum with posterior angles distinct, greatest width usually in front of middle; pronotum piceous, elytra pale castaneous; scutellum not hairy. 24 mm. Utah....*ulkei* Horn
16. Scutellum clothed with hair; fourth segment of antennae not lamellate....17
— Scutellum not hairy; fourth segment of antennae with a short lamella; pronotum dark piceous, elytra chestnut-brown. 26-28 mm. Northern Sierra Nevada Mountains: Nevada and Yuba Counties....*edwardsii* LeConte
17. Pronotum with transverse ridge feebly to moderately developed: elytral intervals distinctly, confluently punctate or subrugose; striae moderate. Northern Oregon....18
— Pronotum with transverse ridge very distinct; elytral intervals finely, sparsely punctate; striae deeply impressed; pronotum piceous, elytra chestnut-brown. 26.5 mm. California: Northern Sierra Nevada Mountains....*staff* Schaufuss
18. Pronotum dark brown, elytra black or fusco-piceous; pubescence ochraceous. Oregon: Washington, Marion and Benton Counties....*dubitalis dubitalis* Davis
— Pronotum fusco-piceous, elytra fulvous; pubescence golden-yellow. Oregon: Clackamas County....*dubitalis leachi* Linsley
19. Scutellum densely clothed with hair....20
— Scutellum not or very sparsely hairy....21
20. Color uniformly pale chestnut-brown; anterior impression of pronotum with a dense longitudinal band of long erect yellow hairs. 20 mm. Washington: Klickitat Co....*crinita* Linsley
— Color dull brownish-black; anterior pronotal impression clothed with short, erect yellow hairs. 18 mm. Northern Oregon: Hood River....*minor* Linsley
21. Pronotum with scattered semi-erect hairs....22
— Pronotum not hairy or with hairs confined to anterior median impression....24
22. Pronotum gray or black; elytra chestnut-brown, piceous or black; form robust, convex; third antennal segment curved..23
— Pronotum and elytra concolorous, pale reddish-brown; form less robust, dorsally flattened; third segment of antennae anteriorly angulate. 23-26 mm. Sierra Nevada Mts.: Mariposa to Tulare County above 4000 feet elevation....*hoppingi* Fall
23. Antennae with lamella of fourth segment more than one-half as long as fifth; elytra chestnut-brown. North central Sierra Nevada Mts.: Yuba and Nevada Counties....*hirticollis hirticollis* Schaufuss
— Antennae with lamella of fourth segment much less than one-half as long as that of fifth; elytra piceous or black. Coast Range Mts.: Sonoma to Alameda County....*hirticollis vandykei* Linsley

24. Anterior impression of pronotum only a little more coarsely, closely punctate than disk, sparsely hairy....25
— Anterior impression of pronotum coarsely, closely punctate, densely hairy....27
25. Fifth segment of antennae with a lamella at least half as long as that of sixth; pronotum widest at basal angles....26
— Fifth segment of antennae with at most a vestigial lamella; pronotum widest behind the middle; ocular canthi projecting at an angle, rounded, surface closely punctate. 23 mm. Santa Lucia Mts....*lucia* Linsley
26. Fourth segment of antennae with a short lamella; ocular canthi almost right angular. 20-23.5 mm. Santa Cruz Co.: Santa Cruz Mts....*conjungens* Horn
— Fourth segment of antennae angulate, not lamellate; ocular canthi projecting forward of a right angle. 24-30 mm. Ventura Co.: Sespe Canyon....*venturae* Linsley
27. Color black to piceous brown....28
— Color light brown, pronotum sometimes clouded with piceous; pronotum shining, posterior angles broadly, obtusely rounded; ocular canthi with anterior margin arcuate, apices rounded, posterior angle and margin broadly rounded. 23.5-28.5 mm. Los Angeles County: San Gabriel Mts....*badia* Fall
28. Greatest width of pronotum at most twice greatest length; dorsal surface of head very hairy; anterior process of clypeus strongly reflexed, lateral angles acute but scarcely produced, emargination almost right-angular; elytra moderately shining; scutellum thinly clothed with long hairs. Los Angeles County....*hirsuta* Davis
— Greatest width of pronotum nearly two and one-half times greatest length; dorsal surface of head sparsely hairy; anterior process of clypeus not reflexed; lateral angles very acute, produced, emargination obtuse, rounded; elytra highly polishd; scutellum without long hairs. Coast Ranges of San Luis Obispo County....*nitida* Linsley

Females

1. Antennal club composed of from four to seven lamellae. Oregon and California....2
– Antennal club composed of three lamellae; form narrowly oval, almost twice as long as broad; color reddish-brown. 28 mm. Alaska: Seward....*trifoliata* Linsley
2. Antennal club composed of four or five long lamellae; third antennal segment at most twice as long as broad....3
– Antennal club composed of six or seven lamellae; third antennal segment distinctly more than twice as long as broad....7
3. Antennal club composed of four lamellae, seventh segment transverse, angulate but not lamellate....4
– Antennal club composed of five lamellae, seventh segment with a lamella one-half or two-thirds as long as that of eighth seg-

ment; clypeus rounded, sometimes feebly notched; vertical horn deeply emarginate at apex. 26-34 mm. San Francisco Bay Area ..... *behrensii* LeConte

4. Lamella of eighth segment distinctly shorter than that of tenth segment; vertical horn emarginate at apex 5
– Lamella of eighth segment almost as long as that of tenth segment; clypeus obtusely emarginate; vertical horn conical, apex truncate, not emarginate. 40 mm. San Gabriel, San Jacinto and San Ysidro Mts. ..... *australis* Fall
5. Third segment of antennae at least twice as long as second; clypeus emarginate at apex 6
– Third segment of antennae but little longer than second; clypeus rounded or truncate at apex. 28-34 mm. Sonoma and Napa Counties ..... *rickseckeri* Horn
6. Antennal segments five and six bead-like, not acute. 41 mm. Napa and Sonoma Counties ..... *sonomae* Linsley
– Antennal segments five and six transverse, acute. 27-34 mm. Central Sierra Nevada Mts.: Nevada County to El Dorado County ..... *fimbriata* LeConte
7. Elytral costae elevated 8
– Elytral costae not elevated 9
8. Fourth segment of antennae not angulate, six to eleven forming club; elytral costae moderately elevated; color castaneous. 25-32 mm. Northwestern Oregon ..... *dubitalis* Davis
– Fourth segment of antennae angulate, five to eleven forming club; elytral costae strongly elevated; color dark reddish-brown. 31 mm. North central Sierra Nevada Mts.: Nevada and Yuba Counties ..... *edwardsii* LeConte
9. Length 20-29 mm. Sonoma to Santa Cruz Counties 10
– Length 31-45 mm. Monterey to Los Angeles Counties 11
10. Antennal segments five to eleven forming club; color pale castaneous. 24-29 mm. Alameda to Sonoma County ..... *hirticollis vandykei* Linsley
— Antennal segments six to eleven forming club; color reddish-brown. 27 mm. Santa Cruz County ..... *conjungens* Horn
11. Antennal club composed of six lamellae 12
— Antennal club composed of seven lamellae 13
12. Antennae with fifth segment angulate, not lamellate. 40-42 mm. Montrey County: Santa Lucia Mts. ..... *lucia* Linsley
— Antennae with fourth segment angulate, fifth segment with a short lamella. 38 mm Ventura County ..... *venturae* Linsley
13 Clypeal emargination shallowly arcuate. 31.5 mm. San Luis Obispo County ..... *nitida* Linsley
— Clypeal emargination broadly arcuate. 32-43 mm. Los Angeles County: San Gabriel Mts. ..... *badia* Fall

SOME NEW OREGON BEETLES
(Coleoptera)

BY K. M. FENDER
McMinnville, Oregon

The species and genus described below have been in my collection for some little time awaiting description. The recent collection of a large series of the Staphylinid beetle from high water drift has occasioned the completion of the study. Mr. C. A. Frost tells me that there are two specimens of the Melandryid in the Fall collection labeled "New genus near Scraptia, teste F. Blanchard."

STAPHYLINIDAE

Xestolinus oregonus Fender, new species

Black, polished throughout; mandibles, elytra, femora and tibiae dark castaneous to nearly black; tarsi and palpi slightly paler. Head elongate oblong behind the antennae, the sides behind the eyes straight and slightly divergent for some distance then broadly rounded into the base; the frontal grooves sinuate and moderately deep tending towards obsolescence posteriorly; a large setigerous puncture slightly behind each frontal groove. The oblique ocular grooves fine and short, punctures small and widely dispersed. A median longitudinal impunctate streak about the width between the frontal grooves extends the length of the head. Narrow impunctate post-ocular areas converge to a point near the hind angles. The genae are finely, obliquely strigulate between the punctures.

The thorax is about two-thirds longer than wide, slightly narrower than the head; apex and base arcuate, the sides converging from the rounded front angles. The dorsal series of punctures are rather fine, each series with from 11 to 16 punctures. Scattered coarser punctures occur laterally. Elytra elongate, subequal in length to and somewhat wider than the pronotum; the punctures fine, sparse and confused in arrangement. The abdomen is finely, sparsely punctate. Length, 7 mm.; width, 1.25 mm.

Holotype male, *allotype* female and two *paratypes*, FOREST GROVE, OREGON, March 11, 1941. The following *paratypes* are from Forest Grove, Oregon, (1) May 18, 1941, (6) June 29, 1941, (1) June 25, 1941, (2) July 25, 1941, (2) July 23, 1941, (1) July 1, 1941, (1) July 2, 1941, (1) July 3, 1941, (1) July

22, 1941, (1) April 7, 1941, (2) March 16, 1941. Other *paratypes* include about 100 from McMinnville, Oregon, October 28, 1945, (2) McMinnville, Oregon, Oct. 10, 1945, (4) Neskowin, Oregon, Feb. 27, 1938, (2) Sand Lake, Oregon, March 23, 1941, (1) Pacific City, Oregon, February 8, 1941.

Color should suffice to separate this species from the previously described species of the genus. These species, *Xestolinus abdominalis* Csy. and *X. oviceps* Csy. have the pronotum, elytra and legs pale rufo-testaceous. In *X. oviceps* the head is oval behind the antennae; elongate in *abdominalis* and *oregonus*. The genae of *oregonus* are finely obliquely strigulate; not strigulate in *abdominalis*.

Melandryidae

Neoscraptia Fender, new genus

Head inclined, suddenly constricted into a small neck a short distance behind the eyes. Last segment of the labial palpi elongate oboval, last segment of maxillary palpi triangular. Front and middle coxae large, conical and contiguous; hind coxae transverse, contiguous. All coxae with distinct trochantins. Antennal segments three and four subequal, each longer than any other save the basal segment. Penultimate segment of all tarsi lobed.

Genotype, *Neoscraptia testacea* Fender.

The following key should help to separate this genus from the other genera of the *Scraptiini*.

A. Last segment of maxillary palpi triangular.....B
AA. Last segment of maxillary palpi cultriform.....*Canifa* Lec.
B. Penultimate segment of all tarsi lobed.....C
BB. Penultimate segments of hind tarsi not lobed.....*Allopoda*, Lec.
C. Last segment of labial palpi triangular, second and third antennal segments combined not longer than fourth.....*Scraptia* Latr.
CC. Last segment of labial palpi oblong-oval, second and third antennal segments each longer than fourth.....*Neoscraptia* Fend.

Neoscraptia testacea Fender, new species

Testaceous; head slightly darker, antennae beyond the third segment becoming brunneous. Shining; head finely rather closely punctulate, eyes coarsely granulate. Pronotum strongly narrowed in front. The posterior angles sharply rounded into the basal margin which is lightly emarginate at each of the lateral basal

impressions. Surface finely closely punctate becoming feebly punctate granulate towards the sides. Elytra narrowed behind, more sparsely, coarsely punctate. The under surface sparsely finely punctate. Pubescence fine, sparse and yellowish. Length, 4 mm.

Holotype, male, *allotype*, female, and six *paratypes*, WALLOWA LAKE, OREGON, June 23, 1941, all collected by Mrs. Fender and the author.

A MINUTE ON DICHELONYX HARRIS, 1827
(Coleoptera: Scarabaeidae)

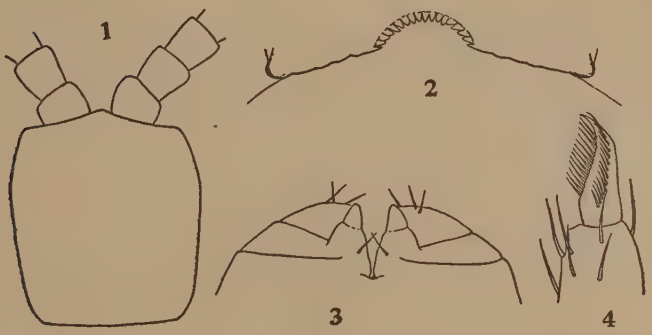
Various nomenclators, like Neave's "Nomenclator Zoologicus," the Prussian Academy's "Nomenclator Animalium Generum et Subgenerum," and Sherborne's "Index Animalium," list *Dichelonyx* Harris as a *nomen nudum*. All give the original publication of the name as Harris *in* Hitchcock, Rep. Geol. Mass., (1 ed.), p. 373, (1833), or (2 ed.), p. 565, (1835). Dalla Torre in Junk's "Catalogus Coleopterorum" (Pars 45, Scarabaeidae, Melolonthinae I, p. 314) employs Kirby's 1837 name *Dichelonycha* for this genus. Leng in his catalogue of the Coleoptera of America uses "*Dichelonyx* Harris 26-6" but does not list any paper to correspond with this citation in his biblography. In a footnote on page 7 of his essay on the American species of *Melolontha* injurious to vegetation, Harris proposed *Dichelonyx* in the following manner: "From the singular manner in which the nails are divided at tip, I would call the *linearis* of Schönherr [i. e. *Melolontha linearis* Gyllenhal *in* Schönherr, 1817 = *Melolonatha elongata* Fabricius, 1792] DICHELONYX." Thus *Dichelonyx* Harris is a validly proposed name with *linearis* as type. The correct citation for *Dichelonyx* is: Massachusetts Agricultural [Repository and] Journal, vol. X, p. 7, (July, 1827).

In the same footnote, Harris proposed *Phyllophaga* for the first time, associating with this name the species [*Melolontha*] *quercina, hirsuta, herticula,* and *balia*. Thus this proposal of *Phyllophaga* cannot be considered a *nomen nudum* as Neave states in his recent Nomenclator.—V. S. L. PATE, Ithaca, N. Y.

A NEW SCHENDYLOID CHILOPOD FROM CALIFORNIA

BY RALPH V. CHAMBERLIN
University of Utah, Salt Lake City

The genus *Nyctunguis* of the family Schendylidae is proving to be well represented by species in the south-western United



EXPLANATION OF FIGURES

Nyctunguis glendorus Chamberlin. Fig. 1. Cephalic plate in outline, dorsal view. 2. Labrum. 3. First maxillae. 4. Claw of palpus of second maxillae.

States and Mexico, most of the known species occurring in California. The type of the form here described as new occurred among a small number of chilopods and diplopods taken by Professor V. C. Shelford in California in 1944 and now in the author's collection.

Nyctunguis glendorus Chamberlin, new species

Pale yellow, dilute orange anteriorly, the head light orange.

Cephalic plate broad; without frontal suture; overlapping the basal plate. (Fig. 1.) Antennae attenuated distad, the last article about equal in length to the two preceding taken together.

Labrum with median arch even, armed with about 16 stout teeth and a single definite serration at each end of the series,

the free margin on each side weakly uneven or vaguely crenate but without teeth or serratures. (Fig. 2.) First maxillae as shown in fig. 3. Both margins of claw of second maxillae closely pectinate (Fig. 4).

Mandible with teeth arranged in three blocks: three, 3, 3, beginning with most distal.

Joints of prehensors wholly unarmed; claws when closed a little exceeding the head anteriorly; no chitinous lines evident.

Tergites bisulcate.

Spiracles all circular, the first considerably larger than the second, from which they decrease very gradually in going caudad.

Ventral pores in a subcircular area at middle of plate, beginning on second sternite.

Last ventral plate broad, the sides moderately converging caudad. Coxal pits moderately large, two on each side, these free from sternite.

Anal legs with well developed claws.

Pairs of legs in female holotype, 55.

Length, 28 mm.

Locality. California: Angeles National Forest. Glendora. One female taken in growth of golden oak, July 15, 1944. Collected by Dr. V. E. Shelford.

The labrum a little more strongly arched at middle and with more teeth than in *N. cavalinus* and also with the lateral margins showing fewer pectinations. The proximal dental block of the mandible is composed of five teeth as against 3 or 4.

F. W. NUNENMACHER

Mr. F. W. Nunenmacher, a charter member of the Pacific Coast Entomological Society, passed away at his home in Piedmont, California, on April 30, 1946. An enthusiastic collector of Coleoptera, Mr. Nunenmacher's taxonomic interest was mainly in the Coccinellidae. One of his last papers appears in the present number of the Pan-Pacific Entomologist; another will appear in a future issue. An account of Mr. Nunenmacher's life and work will also be published in a subsequent number of this journal.

A NEW SPECIES OF BOLITOBIUS FROM THE PACIFIC COAST

(Coleoptera, Staphylinidae)

BY E. S. DETHLEFSEN
San Francisco, California

Specimens of the following species, collected by the writer at Ben Lomond, California, were brought to Dr. E. C. Van Dyke for identification. They proved to be conspecific with a series of specimens in his collection at the California Academy of Sciences under an unpublished Van Dyke manuscript name, which was designated many years ago. The species is named at this time for Dr. Van Dyke who kindly permitted me to present the description.

Bolitobius vandykei Dethlefsen, new species

Holotype male. Orange-yellow, shining; head, venter, a large spot on each elytron, and abdomen black with the exception of the penultimate segment. Head smooth, black, shining, decidedly elongate-oval. Antennae rufo-piceus, the two basal segments paler. Other segments paler towards apex; first four segments cylindrical; five to ten flattened and about as long as wide; apical segment longer and oval at tip; segments four to eleven fimbriate. Maxillary palpi slender, moderately elongate. Thorax orange-yellow, narrower in front with posterior angles broadly rounded, not as wide as elytra. Elytra spiculate along margin, sparsely punctate. Color orange-yellow, each elytron with a large black spot attaining both the outer margin and the apex, and advancing forward along the outer edge to the middle. Abdomen coarsely punctate, legs and coxae rufous.

Length (anterior pronotal margin to apex of elytra), 2.5 mm.; breadth, 1.5 mm.

Allotype female. Similar to male except for larger size. Length, 3 mm.; breadth, 2 mm.

Holotype and *allotype.* Collected from fungus on decaying logs, one mile north of BEN LOMOND, SANTA CRUZ COUNTY, CALIFORNIA: February 4, 1940 (E. S. Dethlefsen); California Academy of Sciences (Type numbers 5021 and 5022).

Paratypes. Four with above data; one from Seattle, Washington, September 21, 1897 (O. B. Johnson) (CAS); two from Port Angeles, Washington, May 26, 1906 (E. C. Van Dyke) (CAS).

Paratypes are deposited in the following collections: California Academy of Sciences, U. S. National Museum, and the Dethlefsen collection.

This very attractive species appears to be related to *Bolitobius quaesitor* Lec. according to the table given by Horn (Trans. Am. Ent. Soc., vi (1877) pp. 113-114). Its medium size, very elongate head, and the orange-yellow of the prothorax and elytra should serve to distinguish the species.

STUDIES AMONG THE COCCINELLIDAE, NO. 10
(Coleoptera)

BY F. W. NUNENMACHER
Piedmont, California

Hippodamia apicalis tricolor Nunenmacher, new subspecies

Color. Reddish brown, black, and snow white. Head black, with a three-pointed crown, mouth parts and antenna yellowish. Punctures fine. Pronotum black, polished margin with a narrow yellow border. A small speck in front of the scutellum and a small triangular one on the anterior margin between the eyes. In one paratype from Oregon the anterior margin of the black is slightly trilobed. Punctures very fine. Scutellum small, black. Elytra spot a (after Johnson) is at the tip of the apex. Spots ½ + 3, 1 + 2, 5 + 4 + 6 + a, the space between ½ + 3 and 1 + 2 snow white, the same length as the black color, which is about ¼ the length of the elytra. Spot 1 + 2 covering the callus, longer than wide, rounded inside, undate on the marginal side. The space from the black area to the margin white as far as the black color. Spots 5 + 4 + 6 + a take in almost all the space from ⅔ to the apex. Spot 5 does not reach the suture. Spots 6 to a do. The suture has the reddish brown from spot 3 to 5. In the center of these spots is a round space about half the diameter of the black color with an opening about the same width between spot 5 and 6, to the suture. This space is also white. The margin from the humeral angle to spot 4 reddish brown. From spot 4 to a, it is white. Punctures a little larger than pronotum. Ventral surface black. Meso- and metepisternum white. Legs with femur black, tibia and tarsus yellowish.

Holotype male. Length, 4 mm.; width, 3 mm.

Type Locality: LASSEN COUNTY, CALIFORNIA, X - 14 - 45. Coll. F. W. Nunemacher, Jr. One male paratype the same. One male partaype, REDMOND, OREGON, X - 11 - 39, Schuh - Gray.

Holotype and two paratypes in author's collection.

A striking new color-pattern in the *Hippodamia*. When caught all three colors were very clear. The white color was snow white. Unfortunately, they were dropped in a bottle of dirty alcohol and remained in it for three days. This darkened the white color some. Also the white seems to be fading some as they dry out.

Remarks on "Determinate Evolution in the Color-pattern of the Lady-beetles," by Roswell H. Johnson, Carnegie Institution of Washington, 1910:

Page 54. I cannot agree with Mr. Johnson in regard to the yellow pattern of the head of apicalis. All my 37 specimens have a three-pointed crown. In the male it is larger than the female.

Page 72. *Cleis* changed to *Mulsantina picta* Rand.
var. *impictipennis* Weise 1895.
syn. *blanchardi* Johnson 1910.

THE OCCURRENCE OF CEUTORHYNCHUS ASSIMILIS (PAYKULL) IN CALIFORNIA

The turnip seed weevil, *Ceutorhynchus assimilis* (Paykull), is a common pest of cruciferous crops in Europe and Scandinavia. It was first reported in the United States by Baker[1] from specimens collected in the State of Washington in 1935.

On March 6, 1946, *C. assimilis* was taken taken in large numbers from the flower heads of the Common Yellow Mustard, *Brassica campestris* Linn., in the hills directly behind the University of California at Berkeley. Additional specimens were collected during March and April in the same locality, at Lake Temescal, Oakland, California, and one mile north of Montara, San Mateo County, California, all from the same species of plant. These specimens were carefully compared by Dr. E. C. Van Dyke with those from Washington and found to be the same. —K. S. HAGEN.

[1] Baker, W. W., 1936. Can. Ent. 68(9):191-193.

NOTES ON ZERENE EURYDICE MASUMBROSUS
(Lepidoptera, Pieridae)

BY T. B. BLEVINS

It has long been contended by many authorities that abberations are atavistic throw-backs to a common ancestral prototype. The abberation *masumbrosus* of female *Zerene eurydice* has often been held up as an example of this. In its most complete form this abberation closely approximates female *Zerenecaesonia*, thus apparently showing a tendency to revert to a common ancestral characteristic. If this was the case, however, this abberation would appear as a definite ratio in populations all over the range of *Z. eurydice*. This is not true. This abberation is much more frequent in the San Bernardino Mountains than in any other portion of its range. As well as I have been able to determine, this abberation has never been taken North of San Francisco Bay, although *Z. eurydice* is found there. From the facts at my disposal, it would appear that this is not an atavistic tendency at all, but a fertile inheritable mutation.

In 1936, near Moon Lake in the San Bernardino Mountains, I took five female *Z. eurydice* all of which showed this variation to a greater or lesser degree. At the same time in Crestline, twelve miles away, I took six females that showed no variation at all; and at Lake Arrowhead, fifteen miles away in another direction, one female that also showed no variation. In 1937 I took three females at Moon Lake all showing this tendency, and to a greater degree than the previous year; one from Crestline and three from Arrowhead did not show any abberation. 1938 yielded two females from Moon Lake that were completely abberant, almost like female *Z. caesonia*. Collecting at Crestline and at Arrowhead again secured 11 females with no abberations.

In three years I had taken ten females at Moon Lake, all of which showed this abberation, and to an increasing degree; compared to twenty-two females from surrounding country of which not one showed any abberation. Thus, inbreeding seemed not only to be perpetuating the abberant tendencies, but also increasing it. It will be interesting to note in the future if more and more *Z. eurydice masumbrosus* are taken in this region. Unfortunately, I have been unable to return to this colony since

1938. The obvious end-point, if this theory is correct, is a race of *Z. eurydice* with females having "dog-faces" like *Z. caesonia.* A great amount of natural or controlled breeding will be necessary to substantiate this theory, but the above facts would tend to show that this may be the case.

SOME APHID HOST RECORDS

BY GEORGE F. KNOWLTON
Utah State Agricultural College, Logan, Utah

This report contains a number of aphid host records not recorded in the Patch "Food plant catalogue of the aphids of the world" (Maine Agr. Exp. Sta. Bul. 393, 431 pp., 1938).

Amphicercidus flocculosa (G.-P.) on *Lonicera utahensis,* Logan, Utah, September 27, 1941.

Aphis chrysothamnicola (G.-P.) on *Chrysothamnus nauseosus* at Wolf Creek Canyon, Utah, July 24, 1945.

A. rociadae Ckl. was infesting *Delphinium glaucum* in Emigration Canyon, Utah, June 21, 1925.

A. eriogoni Cowen. A specimen was found in the stomach of a chipping sparrow collected in Avon Canyon, Utah, August 28, 1941.

A. lugentis Wms. on *Senecio sonnei,* Baker Creek Narrows to the West of Baker, Nevada, May 18, 1940 (Captain T. O. Thatcher).

A. monardae Oest. on *Monarda menthaefolia,* top of Farmington Mt., and at the head of Parrish Canyon in Utah, July 23, 1942; Beaver Mt., Utah, July 10, 1942.

Capitophorus acanthovillus K.-S. was collected on *Chrysothamnus viscidiflorus* var. *stenophyllus,* five miles west of Snowville, Utah, August 6, 1940; on *C. v.* var. *elegans* at Cedar Creek, Utah, August 5, 1941; in rock wren's stomach, Dolomite, Utah, September 28, 1941; on *Chrysothamnus* at Snowwater Lake, Nevada, August 20, 1943.

C. chlorophainus K.-S. on *Chrysothamnus viscidiflorus* var. *lanceolatus* near Rick's Spring in Logan Canyon, Utah, July 4, 1942.

C. elongotus K. on *Chrysothamnus greeni* var. *typicus,* Marys-

vale, Utah, July 12, 1942; and Beaver, August 7, 1942; on *C. pulchellus*, Castleton, Utah.

C. gregarius K. on *Chrysothamnus nauseosus* var. *speciosus*, Logan Canyon, Utah, October 1, 1942; also taken at Floriston, California, July 23, 1944.

C. magnautensis K.-S. on *Chrysothamnus viscidiflorus* subsp. *linofolius* at Randlett, Utah, July 25, 1945.

C. oestlumdi K. on *Chrysothamnus nauseosus* var. *albicalis* at Honeyville, Utah; on *C. greeni* var. *typicus* at Joseph, Utah, September 20, 1937 (Knowlton and C. F. Smith; and on *C. nauseosus* var. *speciosus*, Wellsville, Utah, June 26, 1936 (Knowlton and C. F. Smith). Also taken at Montello, Nevada, on August 12, 1929, and Flagstaff, Arizona, September 22, 1944.

C. pycnorhysus K.-S. on *Chrysothamnus viscidiflorus* var. *typicus* at Cove, Utah, July 1, 1941.

C. utensus P.-K. on *Chrysothamnus viscidiflorus* var. *stenophyllus* in Curlew Valley, Utah, June 5, 1943; also collected on rabbitbush at New Plymouth, Idaho, June 17, 1939; and at Wells, Nevada, August 20, 1943.

Kakimia polemonii (G.-P.) was extremely abundant on and damaging *Polemonium albiflorum* at Monte Cristo, Utah, July 21, 1942, and on top of Farmington Mt., Utah; on *P. speciosum*, Mt. Timpanogos, Utah, July 26, 1942.

Macrosiphum thermopsaphis K. on *Thermopsis montana* at Monte Cristo, July 18, 1939, and Beaver Canyon, in Utah, July 10, 1942.

M. albifrons Essig on *Lupinus lumicola* on Antelope Flat, Ashton, Idaho, July 30, 1936 (T. O. Thatcher).

M. gaurae Wms. In lizzard stomach, *Uta stansburiana stansburiana* (B.-G.), at La Sal, Utah, July 26, 1932, and on *Oenothera* in Kanosh Canyon, Utah, July 28, 1940.

M. sporadicum K. on *Chrysothamnus nauseosus* var. *albicalis* on foothills of the Wellsville Mts., north of Brigham City and in Brigham Canyon, Utah, August 5, 1941.

M. stanleyi Wilson on *Sambucus callicarpo*, Puyallup, Washington, August 14, 1936 (W. W. Baker).

NOTES ON EUROPEAN COLEOPTERA IN WASHINGTON, INCLUDING A NEW SPECIES OF MEGASTERNUM

BY MELVILLE H. HATCH[1]
University of Washington, Seattle

I have previously reported (Pan-Pac. Ent. IX, 1933, p. 117-120) on four European species of Carabidae occurring in western Washington, two of which had not before been recorded from North America. The present note records the similar occurrence of seven more European beetles in the state, two of which again have not previously been taken in the New World.

ACUPALPUS (S. STR.) MERIDIANUS L. (CARABIDAE)

This species is recorded by Csiki (Col. Cat. 121, 1932, p. 1251) from Europe, Asia Minor, and Transcaucasus, and may be found described in most of the manuals of European Coleoptera and figured in many of them. My first specimen was taken in Seattle, Washington, in 1931. I have a second collected there in 1932 and a third in 1935, and a short series of others taken in 1939, 1940, and 1941 on the University of Washington campus. In 1938 single specimens were taken at Chase Lake, seven miles north of Seattle, and at Bothell, about eight miles northeast of Seattle. In 1939 a series was taken at Lake McDonald, seven miles east of Renton, Washington. It may readily be distinguished from other related Nearactic types by its characteristic bicolored elytra, the basal thirty percent and a narrow common sutural vitta being pale; length 3.5-4 mm.; habitat: under stones and other cover in moderately dry places.

SPHAERIDIUM F. (HYDROPHILIDAE)

Brown, Can. Ent. LXXII, 1940, p. 70-72, has reviewed the status of this Old World genus in North America, giving a key to our three introduced species. Menozzi, Bull. Soc. Ent. Ital. 53, 1921, p. 53-57, reviewed the four European species, creating

[1]*Acknowledgments.* An insect collection is the work of many hands. The contributions of the following helped in assembling the specimens on which the present report is based: Jack Beller, Frances Bjorkman, L. L. Buchanan, William J. Clench, Ervin F. Dailey, Robert A. Flock, Mrs. A. E. Griffin, Trevor Kincaid, M. C. Lane, Helen E. Lea, John N. Lowe, James S. Martin, Rita M. McGrath, Stanley S. Nicolay, Don Pike, L. G. Smith, G. J. Spencer, Robert R. Stapp, Oliver O. Stout, Vance Tartar, Bethel L. Welch, John L. Wilson.

the subg. *Sphaeridiolinus* for *bipustulatum F.* and *substriatum* Fald. All three of our species live in dung, *scarabaeoides* L. and *lunatum* F. frequently occurring together in this country. The material in my collection is as follows (the first year of collection in each locality alone is given). The variations of *bipustulatum* are named from Kuhnt's *Illustrierte Bestimmungstabellen der Käfer Deutschlands*, 1913, p. 436.

S. (*Sphaeridiolinus*) *bipustulatum* F. typical form without anterior elytral spot. NEW YORK (Brooklyn-1913). MICHIGAN (Ann Arbor-1919). WASHINGTON (Bothell-1939; Renton-1930; Mount Vernon-1939).

ab. "*quadrimaculatum* Marsh"., with anterior elytral spot. NEW YORK (Brooklyn-1913). MICHIGAN (Ann Arbor-1918; Berrien Co.-1920). WASHINGTON (Bothell-1939; Evans Creek-1929; Olympic Hot Springs-1942; Pine Lake-1934; Seattle-1928; Vashon-1933).

ab. "*humerale* Westh"., with anterior but without posterior elytral spot. MICHIGAN (Ann Arbor-1919).

ab. "*marginatum* F.", without either anterior or posterior elytral spot. MICHIGAN (Ann Arbor-1919).

S. (s. str.) *lunatum* F. NEW YORK (Onondaga Co.-1923). ILLINOIS (Macon Co.-1924). COLORADO (Meeker-1938). IDAHO (Martin-1938). WASHINGTON (Bothell-1934; Cedar Mountain-1938; Cle Elum-1935; Duvall-1931; Evans Creek-1929; LaConner-1934; Lopez Island-1926; Mercer Island-1931; Mount Vernon-1931; Newman Lake-1937; Renton-1930; Seattle-1928; Snohomish-1930; Vancouver-1939). Brown's earliest American record for this species was 1926, from Agassiz, B. C.

S. (s. str.) *scarabaeoides* L. NEW HAMPSHIRE (Pittsfield-1917). MASSACHUSETTS (Blue Hills-1919; Framingham-1914). NEW YORK (Long Island-1910; Onondaga Co.-1923). MICHIGAN (Ann Arbor-1919; Berrien Co.-1920; Boyne City-1923; Detroit-1917; Douglas Lake-1920; Houghton Co.-1925; Menominee Co.-1927; Pellston-1920). ONTARIO (Gull Lake-1921). WISCONSIN (Milwaukee-1915). ILLINOIS (Macon Co.-1924). IOWA (Lake Okoboji-1916). COLORADO (Meeker-1938). WYOMING (Yellowstone Nat. Park-1937). MONTANA (Bozeman-1914; Butte-1933). ALBERTA (Waterton Lakes-1941). IDAHO (Martin-1938; Post Falls-1929). UTAH (Garrison-1938; Salt Lake-1929). ARIZONA (Joseph City-1938). CALIFORNIA (Fort Tejon-1927; Laguna-1932; Napa Co.-1926). OREGON (Cottage Grove-1930;

Dairy-1938; Lake Albert-1938; McKenzie Pass-1930; Wallowa Lake-1935; West Woodburn-1913). WASHINGTON (Bothell-1938; Chehalis-1913; Cle Elum-1935; Coulee City-1939; Dry Falls-1937; Duvall-1931; Enumclaw-1938; Evans Creek-1929; Hooper-1932; Merritt-1937; Mora-1930; Mount Vernon-1931; Neppel-1938; Newman Lake-1937; Olympia-1931; Paradise Park-1930; Puyallup-1937; Renton-1930; Seattle-1916; Spokane-1932; Vancouver-1939; Walla Walla-1943; Wauna-1939). BRITISH COLUMBIA (Kamloops-1937).

MEGASTERNUM MULS. (HYDROPHILIDAE)

I find two species in western Washington, neither of which appear to have been previously recorded from North America. Many of my specimens of both species were taken in flight, especially on the first warm days of early spring.

A. Upper surface shining, not alutaceous, more strongly punctate; black, the appendages paler; the elytra with the punctures of the strial series scarcely impressed, those towards the suture especially toward the base larger than those of the intervals; length 1.7-2 mm.....*boletophagum* Marsh.

AA. Upper surface finely alutaceous, less strongly punctate; black, the appendages paler; the elytra each with a small humeral spot and the apex paler, the punctures of the strial series distinctly impressed but only slightly larger than those of the intervals; length 1.7-2.2 mm.....*pugetense* Hatch sp. nov.

M. boletophagum Marsh. Previously known only from northern and central Europe and the Mediterranean region, I have a series of 33 specimens from Seattle, where it was first taken in 1927.

M. pugetense Hatch sp. nov. Type and paratype: Seattle, Washington. 11-18-1934. M. H. Hatch; nine additional paratypes: Chehalis, Loveland, Seattle, Vashon Island, all in western Washington, taken between 1912 and 1933, in collection of author. I have recorded some of this material as *posticatum* Mann. (Hatch, Pan-Pac. Ent. VIII, 1931, p. 78) and it may be that species, but Mannerheim, Bull. Soc. Imp. Nat. Moscou XXV (2), 1852, p. 344, describes his species as with the elytra "vix conspicue striatis", "scarcely visibly striate", and Horn, Trans. Am. Ent. Soc. XVII, 1890, p. 308, describes the elytral intervals as "not punctate".

OXYOMUS SILVESTRIS SCOP. (SCARABAEIDAE)

I have a long series from Seattle, where I first collected it in 1930. Most of my specimens were taken in flight in the spring. The species is probably native to Europe and western Asia (Schmidt, Col. Cat. 20, 1910, p. 66). In North America it was first described from the "Middle States" as *opacifrons* by Horn, Trans. Am. Ent. Soc. III, 1871, p. 284. Later (l. c., XIV, 1887, p. 64), under the name of *porcatus* F., the same author cited it from Philadelphia and New York; cf. Smith, Cat. Ins. N. Y. ed. 2, 1900, p. 275, and Leonard, Cornell Univ. Agric. Exp. Sta. Mem. 101, 1928, p. 420. Brown, 59th Ann. Rep. Ent. Soc. Ont., 1928, 1929, p. 118, recorded it from Halifax, Nova Scotia, in a cargo from Europe.

PLEUROPHORUS CAESUS CREUTZ. (SCARABAEIDAE)

Schmidt, Das Tierreich 45, 1922, p. 490, gives the distribution of this species as "Europa, Nordafrika, Kleinasien, Kaukasus, Madagaskar, Chile, Vereinigte Staaten". Hamilton, Trans. Am. Ent. Soc. XXI, 1894, p. 395, cites in addition Madeira, Canaries, and Turkestan. Specimens taken in this country were first recorded from the "Middle States" by Horn, Trans. Am. Ent. Soc. III, 1871, p. 291, and later (l. c., XIV, 1887, p. 91) from Baltimore, Md., and Washington, D. C. As *Ataenius rugiceps* it was described from Cincinnati, Ohio, by Dury, Jour. Cincinnati Soc. Nat. Hist. XX, 1902, p. 154. It has likewise been cited from Connecticut (Britton, Conn. St. Geol. Nat. Hist. Surv. Bull. 60, 1938, p. 102); New York (Leonard, Cornell Univ. Agric. Exp. Sta. Mem. 101, 1926, p. 421); New Jersey (Smith, Cat. Ins. N. J. ed. 2, 1900, p. 275); Ontario (Chatham) (Brown, 60th Ann. Rep. Ent. Soc. Ont. 1929, p. 153); Indiana (Blatchley, Col. Ind. 1910, p. 923); Iowa (Iowa City) (Wickham, Bull. Lab. Nat. Hist. St. Univ. Iowa VI, 1909, p. 26); and California (Lake Co.) (Fall, Occ. Pap. Cal. Acad. Sci. VII, 1901, p. 137). I possess a single specimen from Onondaga County, N. Y., taken in 1922 and a short series from Moxee City, Washington, taken in 1939, and from Yakima, Washington. These latter were taken by E. J. Newcomer, April 15, 1941, infesting tomato and cabbage transplants in a hot bed (Dodge and Hatch, Bugs 1941, p. 11). Mr. Kenneth Fender tells us he took this species at McMinnville, Oregon, in 1936, and at Forest Grove, Oregon, in a rotary trap.